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STATISTICAL BULLETIN

METROPOLITAN LIFE INSURANCE COMPANY

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Post-War Depletion of Ranks of Men at Marrying Ages

COMBATANT armies are almost entirely made up of young men, even though in the course of a long war large numbers of older reserves are drawn into the fray. As far as possible, however, these older troops are used in the service branches rather than in the front lines. Consequently, losses of life in war are heaviest among men under 30, either recently married, or at the period of life when they would shortly be ready to marry and establish homes. Thus, 72 percent of German military deaths and approximately 55 percent of the French losses in the Great War were of men under 30. It was inevitable that these heavy military losses would be reflected in the post-War ratios of the two sexes, at the ages at which marriages are most commonly contracted, although this effect is to a certain extent obscured by other demographic factors, such as migrations, military losses of past wars, and by the differential sex ratios of births and deaths. These factors should be kept in mind in considering the data presented in the table on page 2, which gives, for several countries, the ratios of females to males in the age groups mainly affected by the War, and shows also how these ratios had changed, at the first post-War census, as compared with their values at the latest pre-War census.

So, for example, it will be seen in the table that in France the census of 1911, that is, the last prior to the World War, showed substantially the same number of males as females in every five-year age group compared. In contrast with this, the 1921 census showed an excess of 261, 206, and 176 females per thousand males in the age groups 25 to 29, 30 to 34, and 35 to 39, respectively. In Germany, likewise, the pre-War census of 1910 showed substantially equal proportions of males and females in each five-year group, but the 1925 census (which in Germany was the first taken after the War) showed an excess of 150 women per thousand men at ages 25 to 29, 259 per thousand at ages 30 to 34, and 181 per thousand at ages 35 to 39. For various reasons, the changes in the English sex ratios

were smaller than for the other two countries. Nevertheless, here also an excess of 176 per thousand is seen in the age group 20 to 24, 209 per thousand in the age group 25 to 29, and 186 per thousand in the age group 30 to 34. It is true that in this case some excess of females was shown also in the pre-War census, but even allowing for this there was a marked increase in the proportion of women as a result of the War.

It may come as a surprise to most persons that Belgium was comparatively little affected in this respect by the World War. So swift was the onslaught of German forces in that country that Belgium was able to mobilize only a relatively small military force. Practically all the Belgian men who were forced into labor service by the Germans, or who had fled to other countries, returned to Belgium after the War. Nevertheless here also a practical equality in the number of the sexes before the War gave way in 1920 to an excess of females over males by 58 per 1,000, and 36 per 1,000, respectively, in the age groups 25 to 29 and 30 to 34.

The situation with respect to the sex ratios may be further illustrated by comparing the total female population between ages 15 and 44 with that of males between ages 20 and 49. This is the most convenient basis for comparison, taking into account the usual ages of marriage and the approximate average difference in age between bride and groom. The chart on page 3 shows, for certain age groups, the number of females per 100 males at the first post-War census in several countries which had been involved in the War. One neutral country, The Netherlands, is included for comparison. It is found that in every belligerent

Number of Women per Thousand Men at Adult Ages Most Affected by War. Ratios in Specified Age Groups at First Post-War Census Compared with Ratios in Corresponding Age Groups at Last Pre-War Census

Age Group in post-War Census*	France		United Kingdom		Italy		Belgium		Germany	
	1921	1911	1921	1911	1921	1911	1920	1910	1925	1910
20–24	1,169	*987*	1,176	*1,002*	1,047	*971*	1,009	*995*	†	†
25–29	1,261	*1,001*	1,209	*1,016*	1,148	*1,073*	1,058	*997*	1,150	*995*
30–34	1,206	*1,022*	1,186	*1,114*	1,139	*1,092*	1,036	*994*	1,259	*999*
35–39	1,176	*1,019*	1,156	*1,115*	1,111	*1,156*	1,015	*993*	1,181	*1,002*
40–44	1,094	*1,011*	1,126	*1,091*	1,055	*1,120*	1,012	*996*	1,107	*1,007*
45–49	1,047	*1,004*	1,071	*1,072*	1,020	*1,093*	1,017	*996*	1,068	*1,008*
50–54	1,060	*1,026*	1,074	*1,078*	1,022	*1,072*	1,031	*1,004*	1,036	*1,008*

*To obtain corresponding age group in the last pre-War census, the ratios for which are shown in italics, deduct 10 years from the figures shown in column one, except in the case of Germany, where 15 years must be deducted. For example, in France in 1921, the ratio of females to males in the age group 20-24 was 1,169 per 1,000 males; in 1911, these persons were comprised in the age group 10-14, and the ratio of females to males among them was at that time 987 per 1,000.

†Too young at the time of the War to be affected appreciably.

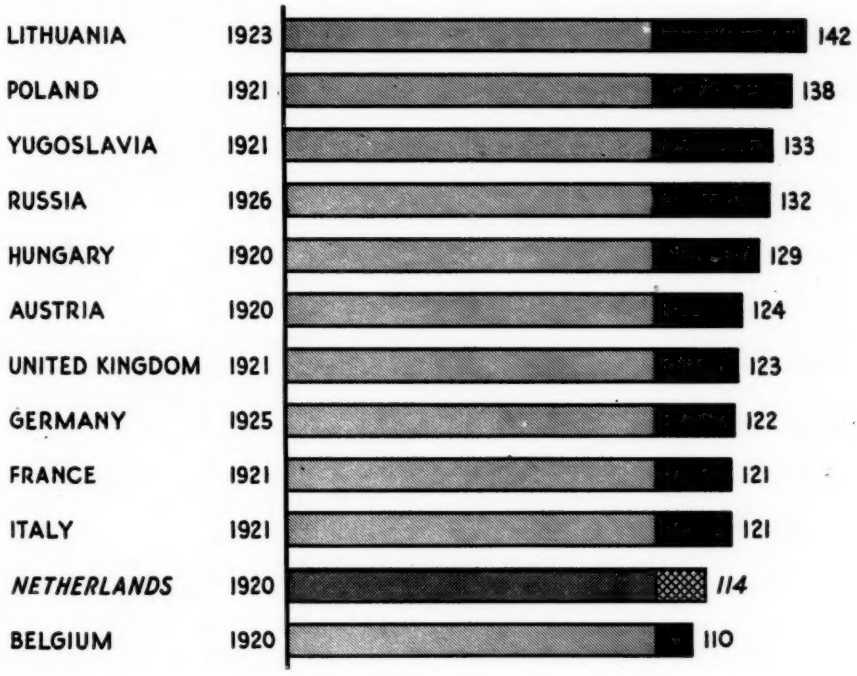
country but one — Belgium — the females of the principal "marrying" ages exceeded the males by more than 20 percent, and in certain eastern European countries by more than 30 percent. Belgium is the only country with a smaller ratio than The Netherlands. For the latter country, a surplus of women is usual, because her large colonial, commercial and shipping interests draw men out of the country. The reason for the low ratio in Belgium has already been explained.

These figures have many and varied implications. Most important is the fact that literally millions of women in Europe were shut off from marriage as a result of the War. The situation was so bad that in fairly responsible quarters there was serious discussion of the advisability of permitting polygamy and giving it legal status. Naturally—except for a brief period immediately after the War — the trend of the marriage rate in most countries turned downward.

As a result of the surplus of women there occurred a marked change in the proportions of the married among men and women. For example, the German census of 1925 showed a marked increase

NUMBER OF FEMALES AGES 15-44 PER 100 MALES AGES 20-49

AT THE TIME OF THE FIRST CENSUS AFTER THE WORLD WAR



in the proportion of the married in the total adult male population as compared with the 1910 census, but a decrease in the adult female population. Among other things, this would indicate that competition in the marriage market was such that many men who, in ordinary times, would not be considered particularly desirable as husbands, did find wives in the circumstances existing after the War. There was, for instance, a marked increase in the proportion of marriages in which the groom was much older than the bride. This of itself is often a source of much domestic discontent and was presumably responsible, in part, for the rise in the divorce rate which took place after the War.

The disparity in numbers between the sexes also meant a decrease in the birth rate, for a time at least, unless there was an increase in the fertility of married pairs. There was little prospect of this in view of the steady downward trend of the birth rate before the War. Moreover, the economic situation in Europe, badly disrupted as it had been by the War, was such as to discourage couples from having children. Also, the comparatively large numbers of marriages in which the groom was much older than the bride, had an adverse effect on the birth rate. It is not surprising, therefore, that the birth rate continued to fall after the War.

Finally, the extreme disparity of numbers between the two sexes, with its inevitable effect on moral attitudes, constituted a serious social problem for the countries concerned, and contributed its share to the great social unrest of the post-War years.

It is hardly necessary to attempt a catalog of the evils of war. Not the least of these, certainly, is the scar left on the population itself. For not only are the actual battle losses matched by losses in future population due to reductions in the birth rate, but the social effects of a deficiency of men in the population profoundly disturb the normal life of nations.

Mortality Improving More Rapidly Among Women

Not only do women have lower death rates than men, but they are also experiencing more rapid improvement in mortality in recent years. Practically every age of life shows striking evidence of this. To visualize the facts underlying this situation there have been prepared the charts on pages 6 and 7. The first of these charts compares the death rates of white males and white females in the United States in the first year of life, and at ages 20, 40, and 60, for several specified years from 1901 to 1937. The second chart shows, for the first year of life and for each decennial age, the ratio of the female to the male death rate in each of the years specified.

Detailed examination of the chart on page 6 brings out two facts which,

though familiar, are worth repeating in this connection. In the first place, it will be noted that, in practically every instance, the death rate of females is below that of males, and, in most instances, well below. Secondly, it is seen that improvement in mortality from 1901 to 1937 was greatest at the youngest ages, but that even at age 40 there were substantial gains during the period under review. At age 60, the death rates of males show no definite trend, while those of females are distinctly on the downgrade.

The foregoing situation may be clarified by a comparison of the actual figures for the death rates at various ages of life of males and females in 1901 and in 1937, respectively. Thus, it is found that the mortality rate in the first year of life, among white males, decreased from 133.45 per 1,000 to 52.36, a reduction of almost 61 percent; among females the rate decreased by almost 63 percent from 110.61 to 41.16 per 1,000. At age 20 the death rates per 1,000 in 1901 and 1937 among white males were 5.94 and 2.55 respectively, with a reduction of 57 percent; in the case of females, the respective rates were 5.54 and 1.96, with a drop of 65 percent. The corresponding decreases in mortality rates at age 40 are as follows: for white males, from 10.60 to 6.36, with a reduction of 40 percent; for white females, from 9.31 to 4.51, with a reduction of 52 percent. Males at age 60 experienced a reduction of less than 7 percent in their mortality in the period from 1901 to 1937, while females had a reduction of 26 percent.

Another and, perhaps, more illuminating exhibit of the relative improvement in the death rates of the two sexes is set forth in the second chart, on page 7. Here the heavily shaded portion of the bars represents the ratio that the female death rate at specified ages and in certain years is to the corresponding male death rate. For each age shown the bars for the years 1901, 1910, 1921, 1929-1931, and 1937 have been arranged in the order stated. On the whole, the heavily shaded bars relating to each of the ages studied tend downward in passing from 1901 to 1937; only the bars relating to the year 1921 for ages 20 to 60 are distinctly out of line. The downward tendency of the heavily shaded bars within each age group is, of course, indicative of the greater relative improvement in female mortality as compared with that of males. Although no satisfactory explanation can be given for the situation shown for 1921, it should be noted, in this connection, that the improvement in the death rate among males in the years immediately following the influenza pandemic was greater than that among females.*

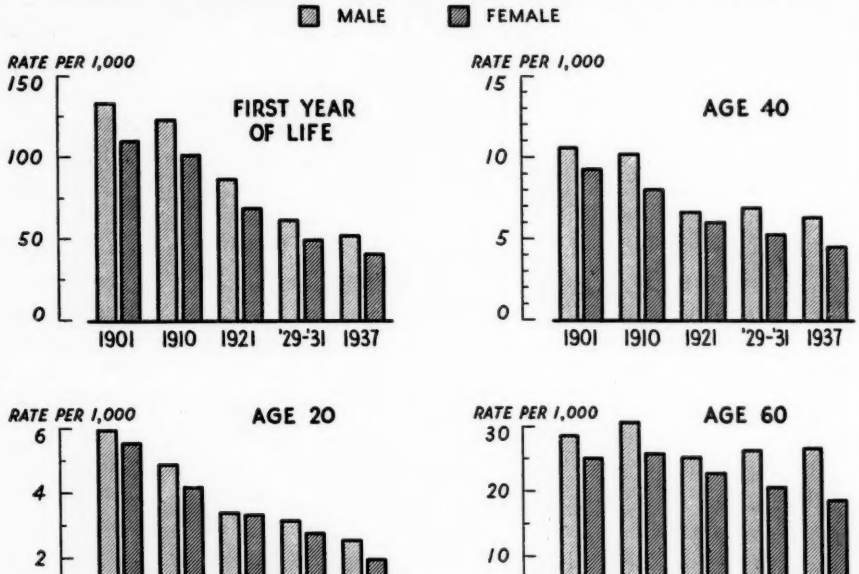
In the first year of life, the ratio of female to male mortality fell somewhat from 83 percent in 1901 to 79 percent in 1937, but at age 10 the reduction was much more

*Metropolitan Life Insurance Company, *Twenty-Five Years of Health Progress*, page 22.

marked — namely, from 90 percent to 72 percent. Reductions of the same magnitude are observed at ages up to 40. Thus, at age 20, the ratio of female to male mortality fell from 93 percent in 1901 to 77 percent in 1937; at age 30, the ratio fell from 97 to 81 percent; and at age 40, from 88 to 71 percent. The most notable changes in the ratio are found at ages 50 and 60, where they fell, respectively, from 87 to 66 percent, and from 88 to 69 percent. Even at age 70 there is noted a decrease in the ratio of female to male mortality, the change being from 91 percent in 1901 to 80 percent in 1937. At age 80 no distinct trend in the ratio is perceptible.

The more rapid improvement in mortality among females, as compared with that among males, is naturally reflected in the figures for longevity. With the general increase in average length of life, white females in the United States have gained 14 years during the period from 1901 to 1937, while males have gained only 12½ years.*

DEATH RATES AT SELECTED AGES
WHITE PERSONS *BY SEX*, UNITED STATES, 1901 TO 1937



Original Registration States, 1901, 1910 and 1921 — Total United States, 1929-1931; 1937

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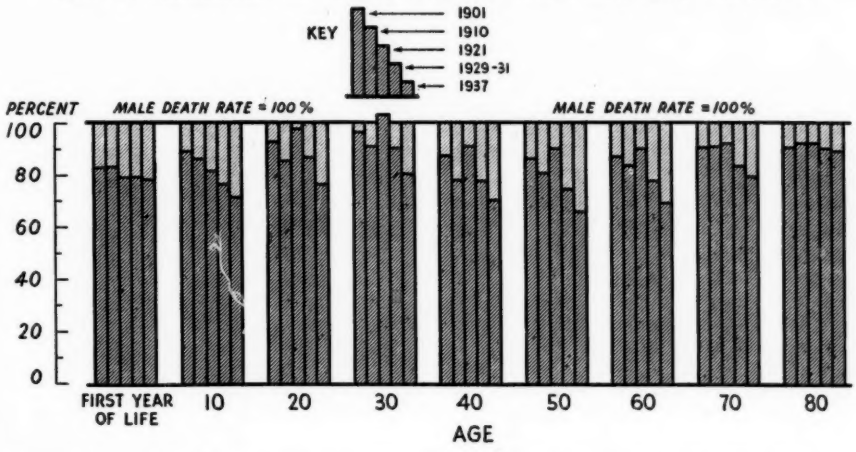
*Statistical Bulletin, August 1939, page 1.

Whereas the expectation of life of white females in 1901 was only 2.85 years greater than for white males, in 1937 the difference between the sexes was 4.33 years.

These differentials in the improvement in mortality and longevity will undoubtedly affect the sex ratio of the population. With lower mortality and greater longevity, out of each year's cohort of newly born, a larger proportion of females than of males will survive to later ages. In this situation, and in the absence of any substantial immigration, it is very likely that the ratio of females to males in our population will show a continuing increase.

RATIO OF FEMALE TO MALE DEATH RATE
WHITE PERSONS *BY AGE*, UNITED STATES, 1901 TO 1937



Original Registration States, 1901, 1910 and 1921 Total United States, 1929-1931; 1937

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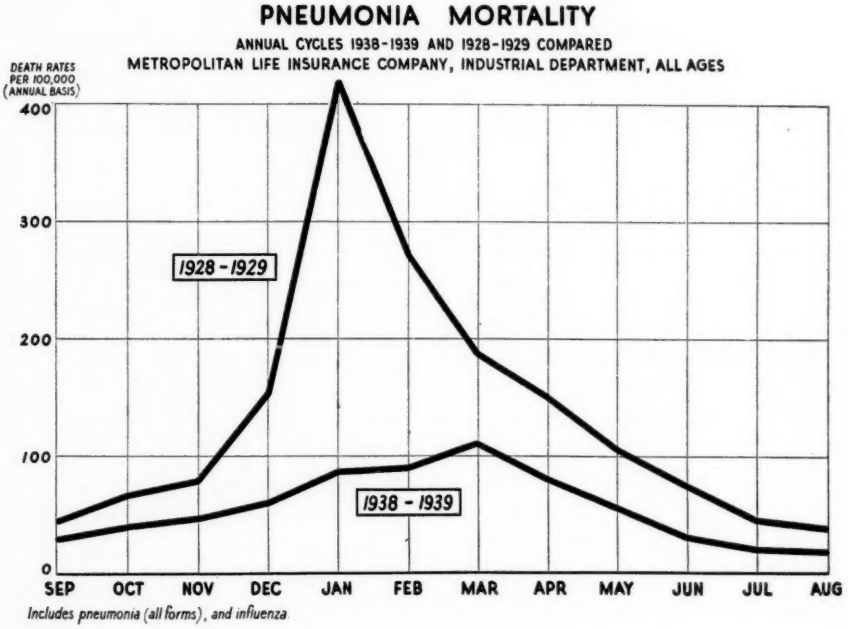
Seasonal Incidence of Pneumonia Greatly Reduced

THE very marked decline in the mortality from pneumonia, as figured on an annual basis, leads one to inquire how the several months of the year have participated in this change. The facts are exhibited graphically in the chart on page 8, in which the upper curve is the graph of the monthly rates experienced in the 12-month period from September 1928 to August 1929, a period of particularly high mortality from influenza and pneumonia, and the lower curve is for the corresponding period in 1938-1939. The striking thing is that the profile of the seasonal curve has changed radically. The entire lower curve is relatively flat, the strong seasonal tendency of pneumonia to flare up in January and immediately succeeding months, so plainly shown

in the upper curve, has disappeared entirely in these latest records. If 1938 and 1939 can be taken as representative of an established situation, the pneumonia season has lost much of its dread. Certainly the experience of these last two years augurs well for the future. We have good reason to be optimistic, in the light of the new methods for pneumonia treatment now being rapidly extended to all parts of the country. Just a short time ago serum therapy was used in only a few cities and States. But now the advantages of serum are generally known and applied. Perhaps even greater successes may be expected from the recent advances in chemotherapy. The full possibilities and limitations of the new drugs have not yet been defined, but the use of sulfapyridine and allied drugs has already yielded most gratifying results. It may be that the most efficient form of treatment will be found to combine sulfapyridine and serum.

But the problem of pneumonia control is not the concern of the medical profession alone. The public itself must do its share in clearly recognizing the importance of early attention in cases that bear any threat of pneumonia. This means that no cold can be regarded lightly, and any signs of more serious respiratory disorder call for immediate medical attention. The public is being educated to a recognition of this, and there is no doubt that the lesson is being learned.



The Census of 1940

THE forthcoming census, when completed, will provide public and private agencies with extremely valuable information enabling them to plan for the welfare of the American people and for the needs of business. It is important that each of us personally should give our earnest cooperation to make the data as useful as possible by giving accurate and complete answers. We appeal to the readers of the STATISTICAL BULLETIN not only to give this cooperation, but also to urge it upon those with whom they come in contact.

Health Record for January 1940

IF we were to gauge the health outlook for 1940 by the January mortality reports for the general population of 88 major cities, the prospect, while still good, would not be as promising as at this time last year. For, while the mortality in January in these cities was below the average in the past for that month, deaths actually increased approximately 5 percent as compared with the same month a year ago.

This increase seems to have arisen chiefly in the South Atlantic, East South Central, and West South Central divisions of the country, for in the large cities in these sections, 18 out of 20 major cities registered increases in mortality. It may well be that this rise in deaths reflects the abnormally cold weather encountered in these areas. In the Middle Atlantic and Pacific Coast States the cities reporting improvement this year were the same in number as those reporting increases in death rates. Reports from other sources are, on the whole, encouraging. For example, in New York City there was a decided drop in deaths as compared with January a year ago, and in particular there was a large decline in infant mortality.

Particularly favorable has been the condition observed among the more than 17,000,000 wage-earners and their dependents who are Industrial policyholders of the Metropolitan Life Insurance Company. For the first month of 1940 these registered the lowest mortality rate for any January in their history—namely, 8.3 per 1,000 as against the previous low for this month of 8.5, recorded in January 1938.

Important causes of death to show

lower death rates among the insured than in January a year ago are all four of the principal communicable diseases of childhood, pneumonia, heart disease, diarrheal conditions, suicide, homicide, accidents (all forms), and automobile fatalities. Higher rates, however, are in evidence for influenza, tuberculosis, syphilis, cancer, cerebral hemorrhage, diseases of the coronary arteries, appendicitis, chronic nephritis, and puerperal conditions.

The most noteworthy among the favorable items in the mortality report for January is a reduction of 29 percent since last year in the death rate for pneumonia. The current figure (53.2 per 100,000) is less than one half that for January 10 years ago. If, in fact, the improvement in the mortality from pneumonia keeps pace with that shown at the beginning of 1940, the death rate in winter for this disease will fall, next year, to the level prevailing 10 years ago for midsummer and early fall, the seasons when the incidence of pneumonia is consistently at its very lowest point. The outstanding success of the newer methods in the treatment of pneumonia gives promise that its death rate will continue to show a material decline.

Reports concerning the prevalence of communicable diseases throughout the general population of the United States show that, with the exception of influenza, the situation is good. There has been, however, above-normal prevalence of influenza, confined largely to the Southern States, which were responsible for more than 85 percent of the total cases reported.

The smallpox situation throughout the country at large is decidedly more encouraging than at this time last year. In fact, only 319 cases of smallpox were reported in January, from 47 States and the District of Columbia. This is approximately one fifth the number reported in the same month of 1939. It is noteworthy, nevertheless, that there were absolutely no cases in New England and the Middle Atlantic States—areas where vaccination and revaccination are readily accepted as preventives of smallpox—and that substantially one half of the 319 cases in January occurred in three States (Minnesota, Iowa, and Colorado) where the presence of this loathsome disease is taken as a matter of course.

Among the items of special public health interest recently reported are the following: The State Board of Health of Kansas, as an important part of its pneumonia control program, is establishing stations in various parts of the State, in order that free laboratory examinations, drugs, and serums may be easily available to all physicians for the treatment of indigent persons.

Under the will of a prominent Chicagoan, recently deceased, a gift of $2,000,000 will be received by the University of Chicago and will be used to establish a permanent fund for medical education and research, under the direction of the Billings Clinic of that city.

The following table shows the mortality among Industrial policyholders for January 1940, December 1939, and January 1939, together with the death rates for the years 1939 and 1938.

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Death Rates per 100,000 Policyholders from Selected Causes. Industrial Department. Weekly Premium-Paying Business*

Causes of Death	Annual Rate per 100,000 Policyholders*				
	January 1940	December 1939	January 1939	Year 1939	Year 1938
All Causes—Total	830.4	747.3	856.6	760.9	766.0
Typhoid fever	.5	.4	.6	.7	1.0
Measles	.4	.2	1.0	.6	1.6
Scarlet fever	.7	.7	1.6	.7	1.1
Whooping cough	1.5	1.2	1.7	1.6	2.0
Diphtheria	1.6	1.4	2.3	1.3	1.7
Influenza	13.8	7.7	11.7	9.8	7.5
Pneumonia (all forms)	53.2	40.3	74.4	42.9	50.6
Tuberculosis (all forms)	44.2	40.7	43.3	44.9	47.2
Tuberculosis of respiratory system	40.2	36.6	37.7	40.4	42.1
Syphilis	12.7	9.8†	10.4†	11.1†	11.3†
Cancer (all forms)	101.5	99.8	97.4	101.1	98.8
Diabetes mellitus	29.9	26.9	29.7	27.5	24.8
Cerebral hemorrhage	65.2	59.9	63.9	59.7	58.5
Diseases of the coronary arteries	54.0	44.0	42.0	40.2	34.3
Angina pectoris	3.4	5.2	7.5	6.3	7.1
Diseases of heart (other forms)‡	171.0	158.0	175.5	160.5	154.0
Diarrhea and enteritis	3.8	4.2	4.7	5.4	7.4
Appendicitis	8.4	8.2	8.0	10.2	10.5
Chronic nephritis	60.8	51.1	54.3	51.4	53.8
Puerperal state—total	5.0	3.7	4.5	5.4	6.2
Suicides	7.6	6.7	7.9	8.6	9.4
Homicides	2.9	3.3	5.0	4.4	4.4
Accidents—total	50.1	45.7	51.8	46.3	48.4
Home accidents	16.0	11.7	15.3	12.0	12.5
Motor vehicle accidents	18.7	20.3	22.2	18.2	18.5
Automobile accidents§	17.4	19.1	20.7	17.1	17.6
All other causes of death	138.0	128.4	157.4	120.4	124.4

*The rates for 1939 and 1940 are subject to slight correction, since they are based on provisiona estimates of lives exposed to risk.

†Excludes aneurysm of the aorta.

‡Excludes pericarditis, acute endocarditis, and acute myocarditis.

§Excludes collisions between automobiles and railroad trains or streetcars.

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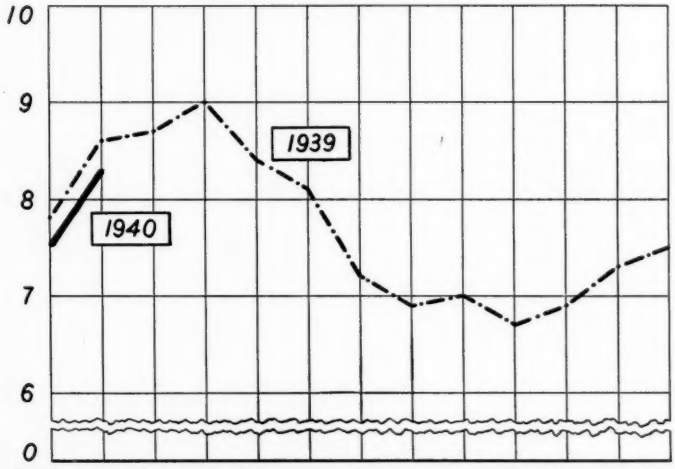
MORTALITY FROM ALL CAUSES

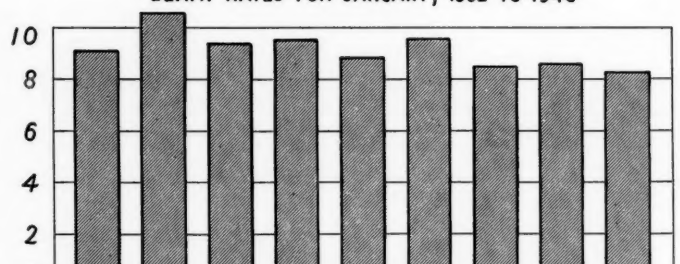
METROPOLITAN LIFE INSURANCE COMPANY
DEATH RATES PER 1,000 POLICYHOLDERS - ANNUAL BASIS
INDUSTRIAL DEPARTMENT - WEEKLY PREMIUM-PAYING BUSINESS

DEATH RATES BY MONTHS: 1939 AND 1940



	(DEC)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1939	8.6	8.7	9.0	8.4	8.1	7.2	6.9	7.0	6.7	6.9	7.3	7.5
1940	8.3											

DEATH RATES FOR JANUARY, 1932 TO 1940



Rates for 1939 and 1940 are provisional

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